

Teachers' Continuous Professional Development (CPD) Needs: Evidence from Teachers

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ABSTRACT

Aim of the Study: This study aims at investigating onto the continuous professional development (CPD) requirements of secondary school teachers in the secondary level. The paper specifically looks into the effectiveness and quality of training programmes aimed to enhance the overall effectiveness and professional competencies of the teachers in classroom practices. This article will draw attention to the mismatches between the available CPD opportunities on one hand, and the real needs of teachers to enhance the outcomes in terms of instructional practices.

Methodology: The study was conducted using a descriptive survey design. A sample of 50 secondary school teachers was used to collect the data through the use of a semi-structured questionnaire that included 30 close-ended questions and two open-ended questions. Descriptive statistical tools were used to analyze the collected quantitative data (closed ended). As the qualitative feedback received in the open-ended questions was considered and analyzed using the thematic analysis in order to find the frequent patterns and themes.

Findings: The outcomes demonstrate that teachers stated strong desires for professional development in three core areas: (a). incorporation of technology in classrooms, (b). innovative pedagogical strategies, and (c). 21st-century learning skills. These zones were steadily emphasized as vital for ornamental student engagement and overall learning consequences.

Conclusion: This demographic analysis was valid in ensuring that there were broad participation of teachers who belong to different age, gender, and qualification categories. The results highlight the significance of guided, situation-specific CPD programs that have the potential to promote the effectiveness of teaching, enhance classroom management, and eventually increase the performance of the institutions.

Keywords: Continuous Professional Development, Quality, Effectiveness, Technology Integration, Classroom Management, Training Workshops, Pedagogy.

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1. INTRODUCTION

Professional development of teachers is very crucial towards the betterment of instruction practices and student performance. CPD programs have been emphasized to make teaching practices to match with the 21st century educational requirements. Nonetheless, there are few systematic reviews of CPD requirements, quality and efficacy of trainings. The study aims at filling this gap by evaluating trainers needs, quality of training programs offered and satisfaction of teaching staff with training programs offered.

In the last twenty years, teacher professional development (PD) has become one of the key topics of educational reform as researchers highlight the importance of the concept in improving teacher effectiveness and student learning rates (Avalos, 2011). The continuous learning process has become well known as a marker of classroom practice and professional identity that professional development is not just a way of updating the skills of the teachers but a continuous process that will change the way the teachers practice in the classroom (Borko, 2004) is the most significant component of the teaching learning process.

1.1 Problem Statement

In the contemporary learning context that is dynamic in nature, educators have to constantly upgrade their learning and polish their practices to suit the emerging needs of students. Continuous Professional Development (CPD) is an important approach to improving teaching practice and increasing student performance. However, CPD programmes may be characterized by serious problems, including poor integration with actual professional needs of teachers, differences in the quality of the training offered, and the lack of evidence on its overall effect. These constraints bring doubts as to whether the current initiatives are relevant enough to the classroom realities or efficient in promoting meaningful teacher development.

This paper attempts to address these issues by answering three important dimensions as follows; first, to define the needs of professional development of secondary school teachers; second, to assess the quality of CPD training sessions; and third, to find out whether the programmes of continuous CPD are effective. The research objectives directly relate such goals to current gaps in practice and may contribute to evidence-based information that will help policy-makers, administrators, and the trainers to design more needs-specific, quality-focused, and effective professional development opportunities to the teachers of secondary schools.

1.2 Significance of the Study

This research is relevant because it contributes to the knowledge of Continuous Professional Development (CPD) among teachers in a secondary school. As the demands on technology inclusion, technology-based modern pedagogy, and 21st century competencies are increasing; teacher quality should also be maintained through effective CPD to enhance student learning methods.

The research can offer an evidence base through the identification of gaps between the current training programmes and the real needs of the teachers to enable policymakers, regional offices, and institutional heads to develop initiatives that are context-specific and relevant. It also appraises the quality and effectiveness of the on-going practices, and there is the necessity of structured and sustained programmes and not short-term workshops.

In addition to its institutional topicality, the analysis is a contribution to the discussion of teacher education in Pakistan as it demonstrates how CPD may be oriented to the global standards and reflect the local conditions. All in all, it provides practical information that can improve teacher development, classroom performance, and school performance.

1.3 Objectives of the Study

1. To identify teachers' CPD training needs.
2. To assess the quality of CPD training sessions.
3. To examine the effectiveness of CPD training programmes.

1.4 Research Questions

1. What are the CPD training needs of secondary schools' teachers?
2. How do teachers perceive the quality of provided CPD training sessions?
3. To what extent are CPD training programmes effective in enhancing teachers' professional skills?

2. REVIEW OF RELATED LITERATURE

According to global studies, continuous professional development (CPD) of high quality and needs-focus is essential in enhancing teaching and meeting Sustainable Development Goal 4. Reportedly, according to UNESCO and OECD, access to the corresponding training and participation in it are still greatly uneven, particularly regarding digital pedagogy and inclusive practices, and they are not always available due to the price and time (OECD, 2019; UNESCO and International Task Force on Teachers for Education 2030, 2023). The supplementary data provided by the World Bank and UNICEF supports the idea that CPD is most effective when integrated into classroom practice and reinforced by coaching and systemic structures and considered an institutional responsibility and a long-term activity (Popova et al., 2022; Quota et al., 2022; UNICEF, 2022, 2024).

The international research always emphasizes the fact that continuous, collaborative and classroom-linked teacher professional development is most effective. For example, OECD (2019) found that teachers across multiple countries identified strong needs for training in digital integration and inclusive pedagogies, which directly influence instructional quality. A substantial body of research highlights that the effectiveness of CPD depends on its conceptual clarity, design, and evaluation mechanisms (Desimone, 2009; King, 2014). Long term, collaborative, and teacher aligned programmes have proved to be more effective than one year training workshops (Timperley et al., 2007; Wei et al., 2009). Kennedy (2016) also emphasizes the significance of learning communities in which teachers critically and reflectively review current practices to place PD as a process built socially instead of a top-down one.

Professional learning conceptual models including those postulated by Opfer and Pedder (2011), underline the fact that the learning of teachers is dynamic and determined by the individual, school, and system-level factors. A variety of staff development models, such as training and observation, peer coaching, and action research, was proposed earlier by Sparks and Loucks-Horsley (1989), which is why staff development models should be contextually diverse. Likewise, a second study by Villegas-Reimers (2003) and Wei et al. (2009) reported the international point of view, which showed that the practice-oriented and collaborative PD (sustained) provides more significant results in any educational system.

Similar issues are witnessed in Pakistan where secondary school teachers tend to have few opportunities of structured CPD. Iqbal and Mahmood (2018) observed that in most institutions, professional development is limited due to the lack of resources and traditional lecture-based approaches, which limit the teachers to use modern pedagogical approaches. More recent evidence from Sindh also highlights the positive role of CPD: Ghunio, Niamatullah, and Shaikh (2023) found that well-designed CPD programs in Sukkur significantly improved teachers' pedagogical practices, subject knowledge, and instructional confidence, with these gains positively correlated to students' academic performance. These two studies combined reveal the importance of the systematic, practice-based and contextually relevant CPD in the improvement of teaching and learning outcomes in Pakistan.

Taken together, these studies drive towards a similar conclusion that professional development of teachers is most effective when continuous, contextually contingent, and built into collaborative structures, which influences the professional practice and the improvement of the institutions.

2.1 Theoretical Framework

The present study will be based on the theories of professional development which treat the process of teacher learning as a context-dependent and continuous process. Avalos (2011) and Borke (2004) have stated that the development of the professions does not only focus on updating of the knowledge but it is focused on changing the classroom practices and building a strong professional identity of the teachers. The role of Continuous Professional Development (CPD) in this view is that it should be used to maintain teacher effectiveness and enhance student outcomes in evolving learning settings.

CPD is analyzed in three interrelated dimensions namely training needs, quality and effectiveness. Determining the needs of teachers will be used to design the relevant programmes whereas teacher satisfaction and learning depends on the quality of training based on trainer expertise, alignment of the curriculum and organizational support. Improved student engagement, classroom management, and pedagogy have been related to effectiveness.

This framework is based on the models that focus on collaboration, reflection, and long-term supportive efforts (Timperley et al., 2007 and Desimone, 2009), and therefore, CPD can be viewed as a personal and a formal process, which is necessary to fulfill the demands of the 21st century education.

3. RESEARCH METHODOLOGY

3.1 Research Design

In this research, a descriptive mixed-methods design was used with the use of a quantitative and a qualitative approach. The quantitative strand quantitatively determined trends by statistical analysis and the qualitative strand developed the perception of teachers on a deeper level. The survey design involved a structured and open-ended survey to gain an extensive knowledge of the CPD needs, training quality, and programme effectiveness.

3.2 Participants

The participants were the teaching staff members of secondary schools in Rawalpindi, representing designations such as Elementary School Teachers (ESTs), Trained Graduate Teachers (TGTs), Secondary School Teachers (SSTs), Computer Instructors, and Vice Principals. Participants were selected to certify demonstration across diverse roles and responsibilities.

3.3 Sample

The sample included 50 purposely chosen teachers who were working in the secondary schools and represented ESTs, TGTs, SSTs, Computer Instructors and Vice Principals. Each of them had undergone CPD training programmes in-service.

3.4 Research Instrument

The researcher created a questionnaire based on a thorough review of literature to use in the gathering of the data. The tool contained 30 statements in Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), and two open-ended questions.

3.5 Data Collection

The data collection was done by the use of Google Form and these were distributed to the participants through WhatsApp. This approach was chosen because it is the most accessible, common among the teachers and can help to guarantee the timely responses.

3.6 Data Analysis

Quantitative data was analyzed using descriptive statistics (using Mean, Standard Deviation and Frequencies) while qualitative data through thematic analysis and visualized through bar charts and frequency distributions.

4. RESULTS

4.1 Demographic Statistics

Demographic profile including designations, gender, ages, academic qualifications, professional qualifications, types of training attended and teaching experiences of respondents is described below:

Table 1: Designations of Respondents (N = 50)

S. No.	Demographics	f	%	
1	Designation	SST	25	50%
		TGT	10	20%
		EST	10	20%
		Vice Principal	4	08%
		Computer Instructor	1	02%
2	Gender	Male	34	68 %
		Female	16	32 %
3	Academic Qualification	B.A/B.Sc	04	08 %
		BS	04	08 %
		M.A/M.Sc	32	64 %
		M.Phil/MS	06	12 %
		PhD	03	06 %
4	Professional Qualification	PGD	01	02 %
		B.Ed	21	42 %
		M.Ed	28	54 %
		M.A Education	01	02 %
5	Participated in in-service trainings	Attended Trainings within last 3 years	44	88%
		Attended Trainings before 3 years	06	12%
6	Type of training attended	Central	16	32%
		Regional	10	20%
		Physical	08	16%
		Online	08	16%
		In-house	05	10%
7	Teaching Experience	Hybrid	03	06%
		1 – 10	17	34 %
		11 – 20	17	34 %
		21 – 30	11	22 %
		More than 30 years	05	10 %

Table 1 shows the frequency and percentage of the respondent regarding their designations. SSTs form the majority group (50%), followed by TGTs (20%) and ESTs (20%), while Vice Principals (08%) and Computer Instructors (02%) are less represented in the sample. Table shows that there were 34 male (68%) and 16 female respondents (32%) have filled the research questionnaire. Table illustrates that most of the participants held an MA/MSc (f=32), while a smaller proportion reported M.Phil/MS degrees (f=6), BS (f=4), B.A/B.Sc (f=4), PhD (f=3), and PGD (f=1). Table represents that mostly teachers possess M. Ed qualification (f=28) following B.Ed (f=21) with relatively few reporting M.A Education (f=1). Table represents most teachers (f=44, 88%) indicated they had attended in-service training within the last three years, although a smaller group (f=6, 12%) reported participation more than three years in CPD trainings.

Table indicates that the most frequently reported were central training sessions (f=16, 32%) conducted by the directorate and regional training (f=10, 20%) organized by the Regional Office, followed by physical (face-to-face) training (f=8, 16%), online training (f=8, 16%), in-house (school-based) sessions (f=5, 10%), hybrid training (f=3, 6%), and other formats (f=1, 2%). Table 1 revealed that most participants had teaching experience between 1–10 years (f = 17) and 11–20 years (f = 17), while fewer reported 30 + years (f = 5).

4.2 Analysis and Results

Quantitative data was analyzed through mean, standard deviation while qualitative data was analyzed through thematic analysis and represented by themes, sub-themes and frequencies.

Table 2: Top Training Needs of CPD

S. No.	Statements	Mean	SD
1	Mandatory CPD training for novice teachers	4.55	0.68
2	Need of 21 st -century learning skills training	4.51	0.58
3	Location of resource center sharing before training	4.49	0.51
4	Training need on effective teaching strategies	4.49	0.54
5	Training need on technology integration in teaching	4.47	0.50
6	Training to teaching students having diverse backgrounds	4.45	0.58
7	Training is needed whenever curriculum changes	4.43	0.74
8	Training is needed on effective classroom management	4.41	0.57
9	Sharing of up-to-date knowledge by resource persons	4.39	0.76
10	Provision of appropriate refreshments during trainings	4.39	0.73

Table 2 represents the mean scores and standard deviations of teachers' responses regarding the top training needs of CPD. The results indicate that all listed training needs received high levels of agreement, with mean values ranging from 4.39 to 4.55, reflecting a strong consensus among teachers. The relatively low standard deviations (0.50–0.76) suggest that participants' responses were consistent.

The highest-rated need was mandatory CPD training for newly appointed teachers (M = 4.55, SD = 0.68), underscoring the importance teachers place on structured induction programmes to equip novices with essential professional skills. This observation indicates that induction training is seen as a platform of guaranteeing teaching quality and professional adaptation.

In the same way, the priority was given to training on skills of learning in the 21st century (M = 4.51, SD = 0.58) and the training on the strategies in teaching (M = 4.49, SD = 0.54), which revealed the awareness of the teachers that they had to work on such skills as critical thinking, collaboration, and innovative pedagogy to address the demands of the contemporary educational requirements. The fact that the focus on the technology integration in teaching is rather high (M = 4.47, SD = 0.50) also supports the idea that the digital literacy and the use of ICT in a classroom has become one of the necessary conditions.

Other needs that were found to be important include but are not limited to teaching diverse students (M = 4.45, SD = 0.58) and training in line with curriculum developments (M = 4.43, SD = 0.74), both of which demonstrate that teachers care about inclusiveness and the need to adjust to the changing curriculum needs. Also, classroom management training (M = 4.41, SD = 0.57) was considered a mandatory tool to cope with such issues as discipline and overcrowding.

Interestingly, organizational and supportive aspects also emerged among the top needs. For example, teachers valued the sharing of up-to-date knowledge by resource persons (M = 4.39, SD = 0.76), as well as the provision of appropriate refreshments during training sessions (M = 4.39, SD = 0.73). Although these are not directly pedagogical, they contribute to a conducive and satisfactory training environment.

In summary, the findings highlight that, teachers perceive CPD as most effective when it is mandatory for new entrants, aligned with 21st-century competencies, responsive to curriculum reforms, and supported

with practical pedagogical and technological training. Moreover, logistical and supportive arrangements also play a role in ensuring participant satisfaction.

Table 3: *CPD Training Evaluation regarding Quality*

S. No.	Statements	Mean	SD
1	Start and end of training according to given schedule	4.14	0.76
2	Supportive web-links were shared among participants	4.02	0.89
3	Expertise of resource persons in conducting sessions	4.34	0.75
4	Effective communication skills of resource persons	4.30	0.81
5	Sharing of up-to-date knowledge by the resource persons	4.36	0.78
6	Active involvement of all participants in activities	4.20	0.76
7	Clarity in answers by resource persons	4.34	0.75
8	Satisfaction with overall quality of CPD trainings	3.92	0.75
9	Time allocation for each training was sufficient	4.18	0.63
10	Trainings are aligned with global education trends	4.02	0.77

Table 3 shows the evaluation of CPD training quality shows high appreciation for trainers' expertise (M=4.34), knowledge sharing (M=4.36), and clarity of responses (M=4.34). Communication skills (M=4.30) and active involvement of participants (M=4.20) were also well rated. Organizational aspects such as time allocation (M=4.18) and schedule adherence (M=4.14) were satisfactory. However, overall satisfaction (M=3.92) and aspects like web-link sharing (M=4.02) and global alignment (M=4.02) scored lower, reflecting improvement needs.

Table 4: *CPD Training Evaluation regarding Effectiveness*

S/No	Statements	Mean	SD
1	Provided trainings are effective in teaching	4.08	0.75
2	Trainings contribute to school's academic performance.	3.98	0.82
3	Trainings keep updated with the latest teaching demand	4.02	0.74
4	Provided trainings enhance teaching skills.	4.18	0.69
5	School-based trainings are effectively implemented.	3.84	0.55
6	Availability of digital resources for CPD	3.74	0.88
7	Trainings improve ability to plan classroom activities.	4.08	0.63
8	Trainings help to assess students' achievements	4.06	0.68
9	Provided trainings help to identify teaching strengths.	4.20	0.64
10	Trainings identify areas of improvement in teaching	4.16	0.62

Table 4 shows the effectiveness of CPD training shows that teachers benefitted most in identifying strengths (M=4.20), enhancing teaching skills (M=4.18), and identifying areas of improvement (M=4.16). Trainings also improved classroom planning (M=4.08) and assessment of student achievement (M=4.06). Contribution to overall school performance (M=3.98), school-based implementation (M=3.84), and digital resources (M=3.74) scored lower, indicating gaps at institutional and infrastructural levels.

Table 5: *Themes and Sub-Themes of Qualitative Data with Frequencies*

S. No.	Themes	Sub-theme	f
1	Technology Integration	ICT & Digital Skills	13
		Smart Boards & Interactive Tools	3
		MS Office & Software Skills	2
2	Classroom Management	Handling Students	10
3	Content & Curriculum Relevance	Curriculum Alignment	7
4	Time & Duration of Trainings	Training Days & Hours	7
5	Teaching Methods & Pedagogy	Activity-Based Learning	2
		Lesson Planning & Strategies	2

Table 5 shows the themes and sub-themes developed from teachers' open-ended responses. Teachers emphasized on Technology Integration (18 responses) such as in ICT, smart boards, MS Office, and digital tools, showing a clear need for technology-focused CPD. Training on Classroom Management (10 responses) techniques like handling large classrooms, discipline, and student engagement emerged as recurring issues.

Timely and time of trainings (7 responses) participants proposed shortening long schedules and decreasing the amount of time per day to be able to make trainings easier. Teachers desired that trainings should be matched with Content and Curriculum Relevancy (7 responses) such as curriculum updates, content of subject and knowledge enrichment.

Educationalists insisted on good teaching techniques and pedagogy (4 responses) such as learning in terms of activities and planning and strategies of the lessons. Teachers require professional support (4 responses) i.e. follow-up and mentoring support following training sessions.

5. DISCUSSION AND FINDINGS

5.1 Discussion

The results show that FGEI teachers highly stressed the necessity of training in the area of technology integration, the competencies of the 21st century, classroom management, and curriculum adaptation. The use of digital literacy and smart boards and software were also a persistent priority, which corresponds to the international literature, which believes that digital competence is one of the key requirements in developing teachers in the present-day environment (Tondeur et al., 2017; OECD, 2019). The fact that teachers seek training related to their curriculum demonstrates teachers expectation that the CPD should be practice-based and context-based, which is congruent with the statements of Avalos (2011), Darling-Hammond et al. (2017), and Borko (2004), who claim that successful professional learning should be permanent, practice-based, and responsive to the needs of the local community.

Teachers rated positively on trainer expertise, communication skills and structured organization of CPD sessions, which showed high levels of professionalism on programme delivery. This result concurs with Desimone and Garet (2015), who emphasize that meaningful engagement requires competence on the part of the trainer. Nevertheless, the issues of general satisfaction, lack of digital resources, and poor global alignment indicate that the quality of CPD cannot be measured with the help of delivery only. CPD, as Guskey (2002), Iqbal and Mahmood (2018) point out, must be also sustainable, up-to-date, and equipped. The recommendation to emphasize more on the follow-up and evaluation is another way that King (2014) makes a point by suggesting that long-term effectiveness requires systematic monitoring.

On the individual level, CPD was successful in improving the pedagogical skills, lesson planning, classroom teaching, reflective practices and student assessment. These findings resonate with Darling-Hammond et al. (2017), who mention that properly developed professional development has a positive direct impact on the quality of instruction and the results of learning. Nevertheless, the impact on the school-wide improvement and the institutional performance and the digital capacity being relatively limited indicates the systemic issues. Opfer and Pedder (2011) believe that teacher learning is not only a matter of personal endeavor but also school culture and structural provision, whereas Kennedy (2016) and Timperley et al. (2007) state that CPD has to be maintained, collaborative, and reflective. The significance of professional learning communities is supported by the interest of teachers in methods of mentoring, learning with peers, and based on activities.

In general, the discussion can indicate that CPD on the secondary level is powerful to develop the personal teacher competence but needs more robust institutionalization, digital infrastructure, and alignment with the global trends to provide more and more extensive and long-term educational improvements.

5.2 Findings

5.2.1 Findings Related to the First Objective

The necessity of mandatory induction training of the new personnel was strongly stressed by teachers (M=4.55, SD=0.68), which is associated with the aspect of professional preparation. Vital skills of 21st century and skills like critical thinking, collaboration, creativity, communications, and digital literacy were also given high consensus (M=4.51). Moreover, efficacious pedagogical growth was appreciated, and the focus was put on effective teaching practices (M=4.49), inclusion (M=4.45), and classroom management (M=4.41). The need of technology integration (M=4.47) and curriculum-responsive training (M=4.43) were also present. Credible trainers and logistical arrangements were some of the supporting organizational factors that increased satisfaction (M=4.39).

5.2.2 Findings Related to the Second Objective

The expertise and sharing of knowledge (M=4.34) was valued by the participants who were supported by effective communication (M=4.30) and the involvement of the participants (M=4.20). Such aspects of organizations as time allocation (M=4.18) and schedule adherence (M=4.14) positively defined. Nevertheless, there was generally a lower level of satisfaction (M=3.92) and the lower rating of global alignment (M=4.02) and offering digital resources (M=4.02).

5.2.3 Findings Related to the Third Objective

At the personal level, CPD facilitated self-reflection and development, such as the realization of strengths (M=4.20), enhancement of teaching competence (M=4.18) and development of weaknesses (M=4.16). The classroom planning (M=4.08) and student assessment (M=4.06) also had positive effects. Although teachers recognized the role of CPD in keeping them updated (M=4.02) and effectiveness improvement (M=4.08), the impact at the institutional level was rated lower (M=3.84), and there was a significant difference in digital resources (M=3.74).

5.2.4 Findings from Open-Ended Responses

Teachers highlighted several recurring needs:

- *Technology integration* (18 responses) including ICT, smart boards, and digital tools.
- *Classroom management challenges* (10 responses) such as discipline and large classes.
- *Training duration* (7 responses), with calls for shorter and flexible formats.
- *Curriculum relevance* (7 responses) ensuring alignment with syllabus and subject updates.
- *Pedagogical innovation* (4 responses), including activity-based learning.
- *Professional support* (4 responses), emphasizing follow-up, mentoring, and coaching.

6. CONCLUSION

This study highlights the critical role of structured, need-based CPD in strengthening the professional capacity of FGEI teachers. The results prove that educators view CPD as a multi-dimensional process, which is important to the professional development, curriculum changes, and teaching enhancement. The priority was put on induction training of new teachers and acquisition of 21st century learning skills, the necessity to make CPD follow the global educational tendencies.

On the whole, positively rated CPD sessions were low in terms of expertise in trainers, knowledge-sharing, communication, and engagement of participants. Training delivery was also aided by proper scheduling and effective time management. Nevertheless, the comparatively low satisfaction with digital means, such as institutions performance, and global orientation suggests the necessity to innovate the

systemic influence of CPD by using the modern educational tools, the well-developed digital infrastructure, and the connection with best practices worldwide.

Q and Q studies indicate that CPD is successful in enhancing the teaching competencies, reflection, lesson planning, classroom management as well as student assessment at the individual level. Teachers emphasized technology integration, curriculum alignment, activity-based learning, and practical strategies for classroom management as areas of high priority. Flexibility in training duration and professional support through mentoring, coaching, and follow-up were also highlighted as essential for participant satisfaction.

In sum, CPD training programme is most effective when it is practical, technology-oriented, curriculum-relevant, and supported by sustained institutional mechanisms. To maximize its impact on teaching-learning process, CPD training sessions must be strategically integrated into schools' improvement frameworks, aligned with global standards of education, and backed by adequate latest digital and organizational support.

6.1 Recommendations

1. There is a need to integrate critical thinking, creativity, collaboration, communication, and digital literacy into CPD programmes.
2. An inclusive practice, classroom management, lesson planning, and activity-based learning may be added in CPD schedule.
3. Ensure digital literacy, smart classroom tools, and ICT-supported teaching with reliable infrastructure to up-to-date secondary school teachers with latest global professional developments.
4. Aligning CPD with curriculum focusing on implementation of assessment methods and strategies at classroom level.
5. Modular training, expand practical workshops, and establish systems for feedback, mentoring, and sustained professional support may be offered.
6. Feedback mechanism from stakeholders should be added as an integral part to improve CPD.

7.2 Limitation

The given study helps to figure out the CPD requirements, quality and effectiveness of the training programmes, though certain limitations are to be mentioned. The article was based on self-reported survey using questionnaires, but although it also captured both quantitative and qualitative data, the questionnaires could be subjective as opposed to objective response to the training effectiveness.

Because of limited time and funds, the research was narrowed down to immediate perceptions of the teachers without a long-term study on how CPD would influence the practices in the classroom and the overall results of the institution. In addition, insufficient digital resources and infrastructure as pointed out by the participants might have affected their perceptions about technology integration and global alignment. Smaller and more heterogeneous samples should be used in future research, classroom observations and student performance records should be incorporated, and longitudinal design methods to determine the long-term effect of CPD programmes should be adopted.

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REFERENCES

- Avalos, B. (2011). Teacher professional development in teaching and teacher education over ten years. *Teaching and Teacher Education*, 27(1), 10–20. <https://doi.org/10.1016/j.tate.2010.08.007>
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3–15. <https://doi.org/10.3102/0013189X033008003>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Palo Alto, CA: Learning Policy Institute.
- Desimone, L. M., & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society & Education*, 7(3), 252–263.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181–199. <https://doi.org/10.3102/0013189X08331140>
- Ghunio, A., Niamatullah, & Shaikh, N. (2023). The influence of continuing professional development (CPD) on the teaching approaches of secondary school teachers in District Sukkur, Sindh, Pakistan. *Pakistan Languages and Humanities Review*, 7(2), 65–739. [https://doi.org/10.47205/plhr.2023\(7-II\)55](https://doi.org/10.47205/plhr.2023(7-II)55)
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3/4), 381–391. <https://doi.org/10.1080/135406002100000512>
- Iqbal, H. M., & Mahmood, A. (2018). Continuous professional development (CPD) of teachers in Pakistan: Issues and challenges. *Journal of Education and Educational Development*, 5(1), 1–16. <https://doi.org/10.22555/joed.v5i1.1552>
- Kennedy, A. (2016). Professional learning in and for communities. *Professional Development in Education*, 42(1), 1–4.
- Kennedy, A. (2016). Professional learning in and for communities: Learning to critique the status quo. *Journal of Professional Capital and Community*, 1(1), 50–62. <https://doi.org/10.1108/JPC-09-2015-0003>
- King, F. (2014). Evaluating the impact of teacher professional development: An evidence-based framework. *Professional Development in Education*, 40(1), 89–111. <https://doi.org/10.1080/19415257.2013.823099>

- OECD. (2019). *OECD teaching and learning international survey (TALIS) 2018 results*. OECD Publishing. <https://doi.org/10.1787/1d0bc92a-en>
- OECD. (2019). *TALIS 2018 results, volume I: Teachers and school leaders as lifelong learners*. Organisation for Economic Co-operation and Development. <https://doi.org/10.1787/1d0bc92a-en>
- Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(3), 376–407. <https://doi.org/10.3102/0034654311413609>
- Popova, A., Evans, D., & Arancibia, V. (2022). *Teacher professional development around the world: The gap between evidence and practice* (Policy Research Working Paper 10186). World Bank. <https://openknowledge.worldbank.org/handle/10986/37442>
- Quota, M., Cobo, C., Patil, A., & Wilichowski, T. (2022). *Implementing effective tech-based solutions for teacher professional development: Guidance note*. World Bank. <https://openknowledge.worldbank.org/handle/10986/38178>
- Sparks, D., & Loucks-Horsley, S. (1989). Five models of staff development for teachers. *Journal of Staff Development, 10*(4), 40–57.
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development: Best evidence synthesis iteration (BES)*. Wellington, New Zealand: Ministry of Education.
- Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education. *Educational Technology Research and Development, 65*(3), 555–575. <https://doi.org/10.1007/s11423-016-9481-2>
- UNESCO & International Task Force on Teachers for Education 2030. (2023). *Global report on teachers: Addressing teacher shortages to achieve education for all*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000385786>
- UNICEF (2022). *Global annual results report 2021: Every child learns*. UNICEF. <https://www.unicef.org/reports/global-annual-results-2021-every-child-learns>
- UNICEF. (2024, October 27). *Teacher development—Successful teachers, successful students*. UNICEF Foundational Learning Hub. <https://www.unicef.org/education/foundation-learning>
- Villegas-Reimers, E. (2003). *Teacher professional development: An international review of the literature*. Paris: UNESCO, International Institute for Educational Planning.
- Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the U.S. and abroad*. Dallas, TX: National Staff Development Council.